

CHAPTER 8

Miscellaneous

United States Energy Use and Gross Domestic Product

ENERGY USE
PER DOLLAR
OF GDP
45.6%
SINCE 1980

Until the early 1970s, energy use kept pace with the growth in the nation's economy. Economic growth during the 1970s and early 1980s was accompanied by slower growth in energy use due to increases in efficiency and a shift away from energy intensive industries.

Efficiency, in terms of decreasing energy required to produce a dollar of Gross Domestic Product, continues to increase slowly.

The ratio between electric sales and Gross Domestic Product has fallen 1.8 percent since 2008, and 23.3 percent since 1980. Energy use per dollar of Gross Domestic Product declined 2.5 percent since 2008 and 45.6 percent since 1980.

The federal Bureau of Economic Analysis (BEA) periodically adjusts the base year for economic data. These data represent the most recent revision of BEA data to 2005 as the base year.

1970-2009

Year	Resident Population (Thousands) ^{a,r}	Gross Domestic Product (Bil. of 2005\$)	Resource Energy Consumption (Quad. Btu) ^c	Electric Sales to Ultimate Customers (Bil. of kWh) ^d	Resource Energy Per GDP (Thous. Btu/2005\$)	Electric Sales Per GDP (kWh/2005\$)
1970	205,052	4,269.9	68.00	1,391.4	15.93	0.3259
1975	215,973	4,879.5	72.00	1,747.1	14.76	0.3580
1980	227,225	5,839.0	78.12	2,094.4	13.38	0.3587
1985	237,924	6,849.3	76.49	2,324.0	11.17	0.3393
1990 ^r	249,623	8,033.9	84.65	2,712.6	10.54	0.3376
1995 ^r	266,278	9,093.7	91.17	3,013.3	10.03	0.3314
1996 ^r	269,394	9,433.9	94.18	3,101.1	9.98	0.3287
1997 ^r	272,647	9,854.3	94.77	3,145.6	9.62	0.3192
1998 ^r	275,854	10,283.5	95.18	3,264.2	9.26	0.3174
1999 ^r	279,040	10,779.8	96.81	3,312.1	8.98	0.3072
2000 ^r	282,172	11,226.0	98.97	3,421.4	8.82	0.3048
2001 ^r	285,082	11,347.2	96.32	3,394.5	8.49	0.2991
2002 ^r	287,804	11,553.0	97.85	3,465.5	8.47	0.3000
2003 ^r	290,326	11,840.7	98.13	3,493.7	8.29	0.2951
2004 ^r	293,046	12,263.8	100.31	3,547.5	8.18	0.2893
2005 ^r	295,753	12,638.4	100.45	3,661.0	7.95	0.2897
2006 ^r	298,593	12,976.2	99.79	3,670.0	7.69	0.2828
2007 ^r	301,580	13,254.1	101.53	3,765.0	7.66	0.2841
2008 ^r	304,375	13,312.2	99.40	3,733.0	7.47	0.2804
2009 ^p	307,007	12,987.4	94.58	3,575.0	7.28	0.2753

^a As of July 1.

^c Quadrillions of Btu.

^d Beginning in 1975, the DOE data source has been used.

^r Revised.

Source: U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review* (May 2010), [http://www.eia.doe.gov/mer/Tables 1.3 and 7.1 \(1970-2009\)](http://www.eia.doe.gov/mer/Tables 1.3 and 7.1 (1970-2009);); Wisconsin Department of Administration Demographic Services resident, national population estimates as of July 1 (1970-2009); Bureau of Economic Analysis, Regional Economic Accounts, <http://www.bea.gov/regiona/> (1970-2009).

Wisconsin Population, Households, Gross State Product and Personal Income

Data in this table are provided as a reference point for making per capita comparisons. To explain recent increases in residential energy use, personal income per capita and per household are shown in current and constant 2009 dollars.

1970-2009

Year	GDP Deflator	Population ^{c,r} (Thousands)	No. of Households ^{a,c,r} (Thousands)	Gross State Product (Million 2009 Dollars)	Personal Income ^{b,r} (Current Dollars)			Personal Income ^{b,r} (2009 Dollars)		
					Total (Million Dollars)	Dollars Per Capita	Dollars Per Household	Total (Million Dollars)	Dollars Per Capita	Dollars Per Household
1970	24.32	4,417.8	1,328.8	91,548	17,621	3,989	13,261	79,547	18,006	59,864
1975	33.56	4,565.8	1,486.8	102,971	27,830	6,095	18,718	91,020	19,935	61,218
1980	47.75	4,705.6	1,652.3	122,762	47,519	10,098	28,760	109,240	23,215	66,115
1985	61.58	4,744.7	1,720.4	133,001	65,132	13,727	37,860	116,111	24,472	67,492
1990	72.20	4,891.8	1,822.1	152,512	88,213	18,033	48,412	134,115	27,416	73,604
1995	81.54	5,134.1	1,946.3	180,529	116,074	22,608	59,638	156,267	30,437	80,289
1996	83.09	5,182.0	1,971.6	187,276	122,953	23,727	62,362	162,436	31,346	82,388
1997	84.56	5,233.9	1,998.4	196,740	130,478	24,929	65,291	169,386	32,363	84,761
1998	85.51	5,280.0	2,024.5	206,266	141,019	26,708	69,656	181,027	34,285	89,418
1999	86.77	5,323.7	2,053.9	213,815	147,462	27,699	71,796	186,552	35,042	90,828
2000 ^r	88.65	5,374.3	2,092.5	217,613	156,603	29,139	74,840	193,919	36,083	92,673
2001 ^r	90.65	5,408.8	2,126.6	220,311	162,792	30,098	76,550	197,129	36,446	92,697
2002 ^r	92.12	5,446.8	2,157.1	224,743	167,742	30,796	77,763	199,887	36,698	92,665
2003 ^r	94.10	5,476.8	2,183.3	228,527	173,295	31,642	79,373	202,153	36,911	92,590
2004 ^r	96.77	5,511.4	2,212.1	233,577	180,338	32,721	81,523	204,563	37,116	92,474
2005 ^r	100.00	5,541.4	2,238.3	235,809	186,595	33,673	83,365	204,826	36,963	91,509
2006 ^r	103.26	5,571.7	2,257.1	239,104	198,598	35,644	87,988	211,125	37,892	93,538
2007 ^r	106.21	5,601.6	2,272.3	241,223	207,201	36,990	91,186	214,140	38,228	94,239
2008 ^r	108.48	5,627.6	2,288.0	243,283	212,553	37,770	92,899	215,077	38,218	94,002
2009 ^p	109.77	5,654.8	2,302.5	235,500	208,220	36,822	90,432	208,220	36,822	90,432

^a Household numbers for intercensal years estimated on basis of Public Service Commission of Wisconsin reports of electric utility residential customers. Starting in 2000, estimates are from the Department of Administration, Wisconsin Demographic Services Center.

^b Personal Income data are revised back to 1970 based on federal BEA adjustments (2010).

^c Population and Households revised for 2000-2009.

^p Preliminary estimates.

^r Revised.

Source: U.S. Department of Commerce, Bureau of Census, *2000 Census of Population and Housing*, CPH-1-51 (August 2001) Final Official Population Estimates and Census Counts for Wisconsin Counties: 1970-2008; Department of Administration, Wisconsin Demographic Services Center (1970-2009); U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Accounts, <http://www.bea.gov/bea/regional/> (1970-2009).

HOUSEHOLD
INCOME
IN 2009 DOLLARS
1.1%
ANNUALLY
SINCE 1990

Wisconsin's population and number of households continue to grow. The number of households has grown faster than the population, as the number of persons per household has declined.

After growing at an annual rate of 2.3 percent over the 10-year period from 1990 to 2000, the 2009 per household income (in constant 2009 dollars) actually declined for the first time since 1970.

Household income growth, in constant 2009 dollars, has been about 1.1 percent annually over the 19-year period since 1990. Gross State Product in 2009 dollars decreased by 3.2 percent in 2009 compared to 2008.

Wisconsin Employment, by Type

WISCONSIN
LABOR FORCE
0.9%

In 2009, Wisconsin's
working age labor force
increased 0.9 percent.

WISCONSIN
EMPLOYMENT
3.9%

Employment in the state
decreased 3.9 percent
(113,266 jobs).

Employment in all
sectors decreased. In
the goods producing
sector, by 12.1 percent,
in the services producing
sector by 2.5 percent,
and a 4.5 percent in
the nonfarm sector.
Most Wisconsin jobs are
classified as services
producing.

1970-2009 THOUSANDS

Year	Working Age 18-64	Total Employment ^a	Percent Working Age Employed	Total NonFarm ^{c,f}	Goods Producing ^{c,d}	Services Producing ^{c,e}
1970	2,362.6	1,530.5	64.8%		Data Not Available ^b	
1975	2,572.5	1,677.0	65.2%		Data Not Available ^b	
1980	2,783.7	1,938.1	69.6%		Data Not Available ^b	
1985	2,858.3	1,983.1	69.4%		Data Not Available ^b	
1990	2,949.3	2,486.1	84.3%	2,291.5	614.8	1,676.7
1995	3,122.9	2,773.6	88.8%	2,558.6	672.5	1,886.1
1996	3,157.5	2,600.6	82.4%	2,600.6	567.6	1,921.4
1997	3,194.8	2,655.8	83.1%	2,655.8	579.2	1,960.9
1998	3,228.6	2,718.0	84.2%	2,718.0	593.2	2,004.6
1999	3,261.0	2,784.0	85.4%	2,784.0	594.8	2,063.5
2000	3,292.4	2,894.9	87.9%	2,833.8	723.0	2,110.8
2001	3,336.3	2,897.9	86.9%	2,813.9	689.5	2,124.3
2002	3,379.4	2,860.9	84.7%	2,782.4	656.2	2,126.1
2003	3,417.8	2,862.6	83.8%	2,143.4	631.9	2,143.4
2004	3,455.2	2,867.1	83.0%	2,807.1	633.3	2,173.8
2005 ^r	3,513.2	2,890.1	82.3%	2,842.1	636.4	2,205.7
2006 ^r	3,547.5	2,929.5	82.6%	2,866.4	637.2	2,229.3
2007 ^r	3,574.6	2,947.0	82.4%	2,884.4	630.9	2,253.5
2008 ^r	3,598.0	2,933.0	81.5%	2,878.1	614.7	2,263.5
2009 ^p	3,631.5	2,819.7	77.6%	2,748.2	540.6	2,207.7

^a Nonfarm wage and salary employment.

^b Industry employment data prior to 1990 are not available due to a change in coding from the Standard Industrial Classification (SIC) system to the North American Industrial Classification System (NAICS).

^c These data categories represent numbers of jobs, not numbers of individuals.

^d Goods Producing is a compilation of the Mining, Natural Resources, and Construction industries.

^e Services Producing is a compilation of all non-farm jobs that do not produce goods.

^f Total Non-Farm job is a compilation of many non-farm job categories, which includes Goods Producing and Services Producing.

^r Revised.

^p Preliminary.

Source: Wisconsin Department of Administration, Demographic Services Center, *Final Population Projections for Wisconsin by Sex and Single Year of Age, 2000–2015* (January 2004) (2000–2009); *State Age-Sex Population Projections by Single Years, 2005–2020* (June 2010) (revised 2005–2009), www.doa.state.wi.us/subcategory.asp?linksubcatid=105&linkcatid=11&linkid=64&locid=9; Wisconsin Department of Workforce Development, Labor Market Information Section, Current Employment Statistics (CES) <http://worknet.wisconsin.gov/worknet/daces.aspx?menuselection=da> (1990-2009).

Wisconsin Occupied Dwelling Units, by Type of Fuel for Space Heating

1970, 1980, 1990, 2000, 2005 AND 2008 NUMBER OF UNITS AND PERCENT OF TOTAL

Fuel	1970		1980		1990		2000		2005		2008	
Natural Gas	654,851	49.3%	945,092	57.2%	1,111,733	61.0%	1,384,230	66.4%	1,453,768	65.5%	1,492,976	66.4%
Fuel Oil ^a	521,256	39.2%	425,622	25.8%	265,600	14.6%	158,499	7.6%	129,925	5.9%	98,225	4.4%
LP Gas	85,549	6.4%	130,476	7.9%	152,823	8.4%	228,408	11.0%	250,739	11.3%	248,871	11.1%
Electricity	24,763	1.9%	101,489	6.1%	168,615	9.3%	236,755	11.4%	288,829	13.0%	285,056	12.7%
Wood	6,795	0.5%	42,783	2.6%	107,239	5.9%	56,862	2.7%	72,452	3.3%	96,898	4.3%
Coal or Coke	29,708	2.2%	2,591	0.2%	787	0.0%	330	0.0%	583	0.0%	335	0.0%
Solar Energy	NA		NA		NA		NA		456	0.0%	277	0.0%
Other	5,334	0.4%	3,578	0.2%	11,294	0.6%	13,839	0.7%	16,850	0.8%	19,376	0.9%
None	548	0.0%	630	0.0%	4,027	0.2%	5,621	0.3%	5,969	0.3%	7,616	0.3%
Total^b	1,328,804		1,652,261		1,822,118		2,084,544		2,219,571		2,249,630	

^a Includes kerosene.

^b Number of households data may not match due to different data sources.

Source: U.S. Department of Commerce, Bureau of the Census, *Census of Housing* (1970, 1980, 1990 and 2000) and American Community Survey (2005, 2007, 2008).

Wisconsin Occupied Dwelling Units, by Type of Fuel for Water Heating

1970, 1980, 1990, 2000, 2005 AND 2009 NUMBER OF UNITS AND PERCENT OF TOTAL

Fuel	1970		1980		1990 ^c		2000 ^c		2005 ^c		2009 ^c	
Natural Gas	668,219	50.3%	877,135	53.1%	1,036,118	56.9%	1,244,544	59.7%	1,374,571	61.9%	1,429,130	63.5%
Fuel Oil ^a	36,913	2.8%	36,048	2.2%	29,000	1.6%	21,000	1.0%	15,500	0.7%	8,000	0.4%
LP Gas	93,955	7.1%	125,741	7.6%	142,000	7.8%	138,000	6.6%	133,000	6.0%	125,000	5.6%
Electricity	491,803	37.0%	599,827	36.3%	603,000	33.1%	671,000	32.2%	687,500	31.0%	680,000	30.2%
Other ^d	5,865	0.4%	4,755	0.3%	7,000	0.4%	6,000	0.3%	5,500	0.2%	5,000	0.2%
None	32,049	2.4%	8,755	0.5%	5,000	0.3%	4,000	0.2%	3,500	0.2%	2,500	0.1%
Total^b	1,328,804		1,652,261		1,822,118		2,084,544		2,219,571		2,249,630	

^a Includes kerosene.

^b Number of households data may not match due to different data sources.

^c Estimate by Wisconsin Office of Energy Independence.

^d The 'Other' category includes Coal/Coke and Wood fuel sources. Data are available for these fuels for 1970: Coal/Coke (3,612 units; 0.3 percent of total Occupied Dwelling Units) and Wood (864 units; 0.1 percent of total Occupied Dwelling Units).

Source: U.S. Department of Commerce, Bureau of the Census, *Census of Housing* (1970, 1980, 1990 and 2000).

Wisconsin Motor Vehicle Registrations, by Type of Vehicle

TOTAL VEHICLE
REGISTRATIONS
0.54%

In 2009, total vehicle registrations increased by 0.54 percent; auto registrations decreased by 1.7 percent. The truck category includes vans, sports utility vehicles and light trucks.

These data are provided as a factor to help compare the use of motor vehicle fuels across the years.

1970-2009

Year	Autos	Trucks	Buses	Motorcycles	Trailers	Total ^{a,b}
1970	1,762,681	317,096	8,178	53,642	64,065	2,210,492
1975	2,023,427	426,756	11,422	96,629	81,378	2,644,681
1980	2,248,951	665,012	13,375	169,329	93,288	3,215,302
1985	2,310,024	771,264	10,325	176,037	101,030	3,406,196
1990	2,456,175	1,053,280	14,518	149,281	152,712	3,825,966
1995	2,419,389	1,399,236	14,940	161,773	240,841	4,281,803
1996	2,398,351	1,464,366	15,413	136,794	205,177	4,260,959
1997	2,370,453	1,537,241	12,497	161,509	213,415	4,339,088
1998	2,402,019	1,668,241	17,061	151,391	231,934	4,513,250
1999	2,396,072	1,735,326	14,546	171,839	242,849	4,605,088
2000	2,405,408	1,822,078	15,587	160,927	256,890	4,703,294
2001	2,413,001	1,922,916	16,259	192,312	269,931	4,860,457
2002	2,404,081	2,012,847	17,061	183,890	285,471	4,948,282
2003	2,401,816	2,103,643	17,555	215,231	303,852	5,091,716
2004	2,387,459	2,176,903	14,099	207,592	334,898	5,170,728
2005	2,384,717	2,280,170	12,418	278,055	365,435	5,320,795
2006	2,427,905	2,354,954	13,222	266,195	396,374	5,458,650
2007	2,427,882	2,404,895	14,110	324,833	419,816	5,591,536
2008	2,391,300	2,400,680	10,736	307,808	411,871	5,522,395
2009	2,350,931	2,429,921	13,176	355,487	402,766	5,552,281

^a As of June 30.

^b Total includes motor homes, mopeds and municipal vehicles; it does not equal sum of registration types shown before 2005. From 2005 on, motor homes, mopeds and municipal vehicles are included in trucks, motorcycles and autos, respectively.

Source: Wisconsin Department of Transportation (June 2010).

Wisconsin Degree Day Zones



The energy needed to heat and cool homes and other buildings strongly depends on the outdoor temperature. The next few pages provide a set of tables listing typical and historic degree day figures throughout Wisconsin in eleven degree day zones—shown in the map on the left.

Heating and cooling degree days are relative measures of outdoor air temperature, and are defined as deviations of the mean daily temperature below or above a base temperature of 65 degrees Fahrenheit. Data for this section are collected through a partnership with the Wisconsin State Climatology Office.

Heating and cooling degree days are provided as population-weighted averages for the state, to provide a point of reference for comparing the severity of winters and summers to statewide energy use.

Source: Wisconsin Office of Energy Independence.

Wisconsin Normal Heating Degree Days, by Zone and Month

Heating degree days are relative measurements of outdoor air temperature and are defined as deviations of the mean daily temperature below a base temperature (65 degrees Fahrenheit, by convention). For example, a weather station recording a mean daily temperature of 40 degrees Fahrenheit would report 25 heating degree days. The normal heating degree days for each zone and month are the 30-year averages, from 1971 through 2000.

Month	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11	State ^a
January	1,715	1,688	1,612	1,678	1,654	1,537	1,647	1,635	1,568	1,490	1,384	1,507
February	1,374	1,371	1,321	1,317	1,329	1,270	1,301	1,311	1,233	1,209	1,132	1,223
March	1,182	1,176	1,120	1,088	1,107	1,065	1,064	1,086	997	978	949	1,016
April	768	725	682	621	637	638	601	629	576	576	611	616
May	412	367	334	286	316	301	263	301	263	261	318	300
June	138	128	106	83	79	85	58	71	51	63	86	79
July	48	50	35	27	18	19	16	20	13	12	13	17
August	71	83	60	53	57	38	31	50	42	33	18	33
September	267	283	246	218	232	208	197	208	171	183	134	180
October	614	640	590	555	572	540	551	535	501	504	443	505
November	1,044	1,057	991	1,018	1,012	925	997	986	937	892	808	900
December	1,517	1,512	1,431	1,508	1,480	1,350	1,470	1,450	1,378	1,298	1,200	1,323
Total	9,150	9,080	8,528	8,452	8,493	7,976	8,196	8,282	7,730	7,499	7,096	7,699

^a Population-weighted statewide average, based on 2000 census.

Source: National Oceanic and Atmospheric Administration, "Monthly Normals of Temperature, Precipitation, and Heating and Cooling Degree Days, 1971-2000 Wisconsin" *Climatology of the United States No. 81 (by State)*, (December 2000).

Wisconsin Normal Cooling Degree Days, by Zone and Month

Cooling degree days are relative measurements of outdoor air temperature and are defined as deviations of the mean daily temperature above a base temperature (65 degrees Fahrenheit, by convention). For example, a weather station recording a mean daily temperature of 90 degrees Fahrenheit would report 25 cooling degree days. The normal cooling degree days for each zone and month are the 30-year averages, from 1971 through 2000.

Month	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11	State ^a
April	0	0	1	1	1	3	1	1	1	6	5	3
May	10	25	25	38	29	24	44	36	35	33	27	30
June	31	52	73	85	88	95	111	92	108	123	114	105
July	116	117	147	164	166	177	214	164	200	214	222	199
August	83	83	105	121	125	126	155	120	163	154	180	151
September	10	11	23	20	16	36	28	27	35	48	63	44
October	0	0	1	0	0	2	1	1	1	4	5	3
Total	250	288	375	429	425	463	554	441	543	582	616	535

^a Population-weighted statewide average, based on 2000 census.

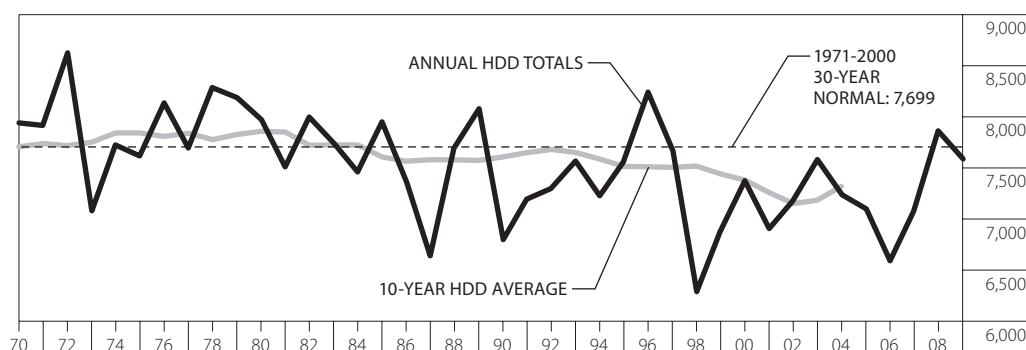
Source: National Oceanic and Atmospheric Administration, "Monthly Normals of Temperature, Precipitation, and Heating and Cooling Degree Days, 1971-2000 Wisconsin" *Climatology of the United States No. 81 (by State)*, (December 2000).

Wisconsin Population-Weighted Heating Degree Days

1970-2009

What significance does the number of HDDs have on energy use? Increased HDDs means that space heating is used more because the temperature is cooler. Fewer HDDs means that space heating is used less because the temperature is warmer. Fluctuations in HDDs can also influence such variables as price and volume of winter heating fuels (e.g., propane, heating oil, natural gas).

The 10-year average and 30-year normal^b are presented here as a point of reference for the variation in HDDs. The 10-year average is plotted in the middle of an 11-year period, averaging the five years previous to, and five years after, the plotted year. For example, the number plotted on the graph at 2003 is the average of 1998 through 2008. The 10-year average is not plotted for 2005 through 2009 because these averages cannot yet be calculated.



Month	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Normal	1,507	1,223	1,016	616	300	79	17	33	180	505	900	1,323	7,699
1970	1,715	1,292	1,116	565	295	81	15	15	179	430	888	1,343	7,934
1975	1,375	1,246	1,212	790	221	74	23	17	258	412	713	1,268	7,609
1980	1,465	1,378	1,141	582	240	117	8	14	177	634	867	1,345	7,968
1985	1,614	1,296	883	474	189	107	7	32	194	486	993	1,660	7,935
1990	1,141	1,119	880	532	361	52	19	19	131	497	708	1,321	6,780
1995	1,344	1,197	890	682	254	38	8	1	213	455	1,097	1,375	7,554
2000	1,428	1,057	759	626	245	86	26	15	189	384	909	1,636	7,360
2005	1,436	1,043	1,073	491	331	20	9	12	75	425	811	1,369	7,095
2006	1,044	1,203	949	441	265	46	3	7	190	599	761	1,068	6,576
2007	1,282	1,398	853	615	201	35	11	13	130	319	879	1,337	7,073
2008	1,451	1,378	1,111	579	350	42	7	11	107	478	861	1,477	7,852
2009	1,689	1,160	977	607	264	106	34	50	96	607	671	1,323	7,584

2009 HDD
1.5%
BELOW
THE 30-YEAR
NORMAL

Using population-weighted^a heating degree days (HDDs) as an index, the winter for 2009 was warmer than the winter of 2008, with 3.4 percent fewer HDDs. In 2009, the number of HDDs (7,584) was 1.5 percent below the 30-year normal (7,699).

The 10-year average is plotted using area-weighted HDDs. The state climatologist uses area to weight these data, where the rest of the HDD data in this publication is weighted by population to better illustrate the connection between degree days and energy consumption.

^a Population-weighted heating degree days are derived by multiplying the number of heating degree days in each degree day zone by the population in that degree day zone, adding the products, then dividing by the total state population (based on 2000 census data).

^b The 30-year normal runs from 1971 to 2000 and is developed by the National Oceanographic and Atmospheric Agency (NOAA).

Source: Wisconsin Office of Energy Independence, degree day data based on daily data from the University of Wisconsin-Madison, Wisconsin State Climatology Office (<http://www.aos.wisc.edu/~sco/>) (1970-2009).

2008 Wisconsin Heating Degree Days, by Zone and Month

Month	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11	State ^a
January	1,589	1,570	1,533	1,648	1,607	1,481	1,621	1,494	1,585	1,468	1,313	1,451
February	1,503	1,548	1,488	1,541	1,554	1,415	1,518	1,445	1,494	1,392	1,240	1,378
March	1,297	1,343	1,257	1,243	1,283	1,155	1,200	1,182	1,155	1,089	1,000	1,111
April	787	758	667	716	679	559	641	589	568	514	554	579
May	504	441	396	380	373	337	345	351	293	317	359	350
June	166	91	66	75	53	31	28	48	19	16	49	42
July	45	14	9	9	4	3	4	4	2	2	11	7
August	78	44	31	26	25	10	18	12	17	8	2	11
September	212	186	167	185	162	140	137	115	122	97	58	107
October	614	613	571	558	554	513	530	529	545	487	396	478
November	1,010	1,018	969	976	932	904	950	906	857	844	780	861
December	1,685	1,680	1,618	1,702	1,649	1,542	1,648	1,584	1,531	1,480	1,311	1,477
Total	9,490	9,306	8,772	9,059	8,875	8,090	8,640	8,259	8,188	7,714	7,073	7,852

^a Population-weighted statewide average, based on 2000 census.

Source: Office of Energy Independence, degree day data based on daily data from the University of Wisconsin-Madison, State Climatology Office (<http://www.aos.wisc.edu/~sco/>)

2009 Wisconsin Heating Degree Days, by Zone and Month

Month	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11	State ^a
January	1,884	1,893	1,833	1,974	1,821	1,773	1,844	1,783	1,794	1,681	1,517	1,689
February	1,314	1,342	1,279	1,331	1,238	1,215	1,276	1,211	1,162	1,153	1,051	1,160
March	1,166	1,190	1,120	1,122	1,084	1,049	1,053	1,043	926	918	890	977
April	754	718	677	634	621	636	589	650	583	569	589	607
May	424	377	347	311	265	302	255	262	259	210	249	264
June	214	163	144	142	109	116	114	104	71	63	108	106
July	109	85	63	71	44	33	33	64	61	34	15	34
August	124	93	81	79	53	59	47	54	59	42	37	50
September	138	130	133	97	106	126	97	102	120	94	72	96
October	757	752	701	751	711	634	700	674	697	597	512	607
November	783	790	748	793	734	690	736	716	713	677	598	671
December	1,516	1,512	1,454	1,577	1,434	1,375	1,468	1,361	1,405	1,318	1,187	1,323
Total	9,183	9,045	8,580	8,882	8,220	8,008	8,212	8,024	7,850	7,356	6,825	7,584

^a Population-weighted statewide average, based on 2000 census.

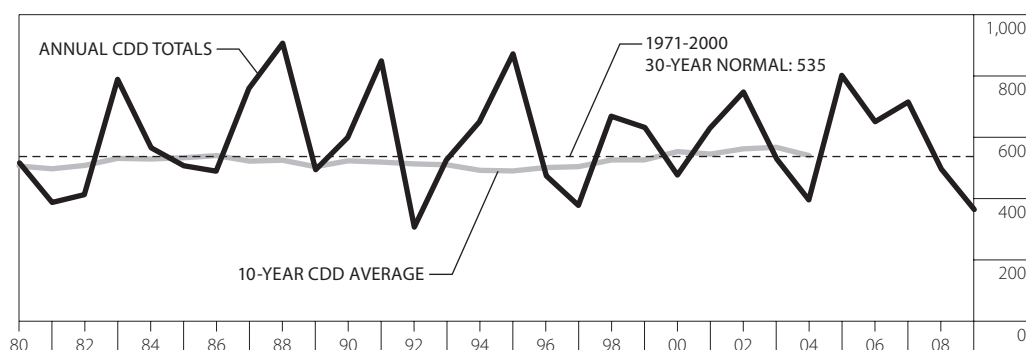
Source: Office of Energy Independence, degree day data based on daily data from the University of Wisconsin-Madison, State Climatology Office (<http://www.aos.wisc.edu/~sco/>)

Wisconsin Population-Weighted Cooling Degree Days

1980-2009

What significance does the number of CDDs have on energy use? Increased CDDs means that air conditioning may be used more because the temperature is warmer. Fewer CDDs means that air conditioning may be used less because the temperature is cooler. Fluctuations in CDDs can also influence such variables as peak electric demand and the wholesale price of electricity.

The 10-year average and 30-year normal^c are presented here as a point of reference for the variation in CDDs. The 10-year average is plotted in the middle of an 11-year period, averaging the five years previous to, and five years after, the plotted year. For example, the number plotted on the graph at 2003 is the average of 1998 through 2008. The 10-year average is not plotted for 2005 through 2009 because these averages cannot yet be calculated.



Month	April ^b	May	June	July	August	September	October ^b	Total
Normal	3	30	105	199	151	44	3	535
1980	9	34	71	218	156	27	0	515
1985	31	28	60	185	98	103	0	505
1990	32	3	120	176	164	99	4	598
1995	0	8	223	273	310	47	5	866
2000	0	37	88	136	154	53	5	473
2005	3	4	211	228	200	119	32	797
2006	1	52	94	301	169	26	4	647
2007	8	48	132	201	196	90	37	712
2008	0	1	93	195	150	52	4	495
2009	0	14	114	80	123	32	0	363

^a Population-weighted cooling degree days are derived by multiplying the number of cooling degree days in each degree day zone by the population in that degree day zone, adding the products, then dividing by the total state population (based on 2000 census data).

^b Includes March for the years 2001 and 2007. For 1990, the October column also includes November.

^c The 30-year normal runs from 1971 to 2000 and is developed by the National Oceanographic and Atmospheric Agency (NOAA).

Source: Office of Energy Independence, degree day data based on daily data from the University of Wisconsin-Madison, State Climatology Office (<http://www.aos.wisc.edu/~sco/>) (1970-2009).

SUMMER
2009 CDD
26.7%
FEWER THAN
2008

Using population-weighted^a cooling degree days (CDD) as an index, the summer of 2009 was cooler than the summer of 2008, with 26.7 percent fewer cooling degree days.

In 2009, the number of cooling degree days (363) was 32.1 percent below the 30-year normal (535).

The 10-year average is plotted using area-weighted CDDs. The state climatologist uses area to weight these data, where the rest of the CDD data in this publication is weighted by population to better illustrate the connection between degree days and energy consumption.

In 2009, the number of CDDs decreased because the summer was cool. 2008 and 2009 represent a slight departure from a trend since 2005 of hotter summers with more CDDs.

2008 Wisconsin Cooling Degree Days, by Zone and Month

Month	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11	State ^a
January	0	0	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0	0	0	0
March	0	0	0	0	0	0	0	0	0	0	0	0
April	0	0	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	5	7	2	0	1
June	25	39	77	41	40	104	52	79	99	111	109	93
July	92	110	156	173	138	188	186	169	179	220	214	195
August	70	66	107	119	90	138	129	113	89	144	195	150
September	38	29	33	39	32	33	47	47	36	57	69	52
October	0	0	2	3	5	3	4	5	1	4	6	4
November	0	0	0	0	0	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0	0	0	0	0	0
Total	225	244	375	375	305	466	418	418	411	538	593	495

^a Population-weighted statewide average, based on 2000 census.

Source: Office of Energy Independence, degree day data based on daily data from the University of Wisconsin-Madison, State Climatology Office (<http://www.aos.wisc.edu/~sco/>)

2009 Wisconsin Cooling Degree Days, by Zone and Month

Month	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11	State ^a
January	0	0	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0	0	0	0
March	0	0	0	0	0	0	0	0	0	0	0	0
April	0	0	0	0	0	0	2	0	1	0	0	0
May	0	10	8	7	16	6	19	25	9	16	15	14
June	34	83	98	100	107	106	113	114	107	130	119	114
July	23	18	38	40	46	50	60	34	35	62	134	80
August	53	61	80	83	92	92	99	108	71	139	162	123
September	15	18	22	45	31	22	36	29	12	21	45	32
October	0	0	0	0	0	0	0	0	0	0	0	0
November	0	0	0	0	0	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0	0	0	0	0	0
Total	125	190	246	275	292	276	329	310	235	368	475	363

^a Population-weighted statewide average, based on 2000 census.

Source: Office of Energy Independence, degree day data based on daily data from the University of Wisconsin-Madison, State Climatology Office (<http://www.aos.wisc.edu/~sco/>)

Wisconsin New Single and Two Family Building Permits

1990-2009^a

	1990		2000		2005		2008'		2009	
Type										
Single Family	10,663	94.9%	17,548	93.5%	20,380	94.0%	8,644	96.0%	6,910	96.3%
Two Family	578	5.1%	1,219	6.5%	1,306	6.0%	360	4.0%	269	3.7%
Heating Equipment										
Forced Air	10,299	91.6%	16,972	95.6%	19,256	88.1%	7,718	70.8%	5,846	66.9%
Radiant Electric	225	2.0%	343	1.9%	515	2.4%	254	2.3%	236	2.7%
Heat Pump	15	0.1%	50	0.3%	199	0.9%	275	2.5%	272	3.1%
Boiler	113	1.0%	385	2.2%	1,017	4.7%	653	6.0%	516	5.9%
Not Specified	589	5.2%	10	0.1%	871	4.0%	2,003	18.4%	1,872	21.4%
AC Equipped										
Yes	2,699	24.0%	10,820	57.7%	14,208	65.5%	5,733	63.7%	4,010	55.8%
No	8,542	76.0%	7,947	42.3%	7,499	34.5%	3,272	36.3%	3,175	44.2%
Space Heating Source										
Natural Gas	8,518	75.8%	11,640	61.9%	13,061	60.2%	4,986	55.4%	3,750	52.2%
LP Gas	1,395	12.4%	3,733	19.8%	4,703	21.7%	2,293	25.5%	1,790	24.9%
Oil	109	1.0%	49	0.3%	33	0.2%	6	0.1%	12	0.2%
Electric	240	2.1%	175	0.9%	265	1.2%	337	3.7%	274	3.8%
Solid	51	0.5%	51	0.3%	83	0.4%	150	1.7%	149	2.1%
Solar	0	0.0%	51	0.3%	83	0.4%	47	0.5%	30	0.4%
Not Specified	928	8.3%	3,117	16.6%	3,477	16.0%	1,186	13.2%	1,180	16.4%
Water Heating Source										
Natural Gas	8,326	74.1%	11,690	62.3%	12,348	56.9%	4,744	52.7%	3,466	48.2%
LP Gas	1,082	9.6%	2,746	14.6%	3,484	16.1%	1,477	16.4%	1,243	17.3%
Oil	22	0.2%	12	0.1%	12	0.1%	1	0.0%	3	0.0%
Electric	667	5.9%	1,495	8.0%	2,058	9.5%	1,535	17.0%	1,359	18.9%
Solid	12	0.1%	27	0.1%	58	0.3%	49	0.5%	34	0.5%
Solar	0	0.0%	1	0.0%	36	0.2%	26	0.3%	10	0.1%
Not Specified	1,132	10.1%	2,796	14.9%	3,709	17.1%	1,173	13.0%	1,070	14.9%
Living Area (Sq. Ft)										
1-1,000	394	3.6%	654	3.7%	591	2.8%	443	5.1%	430	6.3%
1,001-1,800	4,784	44.0%	7,681	43.4%	7,764	37.2%	3,501	40.6%	3,004	44.0%
1,801-2,400	3,153	29.0%	4,874	27.5%	6,091	29.2%	2,134	24.8%	1,655	24.2%
2,401-Greater	2,550	23.4%	4,496	25.4%	6,444	30.8%	2,535	29.4%	1,738	25.5%
Total	10,881		17,705		20,890		8,613		6,827	
Average (Sq. Ft)	1,980		1,945		2,148		2,072		1,961	

SINGLE FAMILY
PERMITS
20.1%
FROM
2008 TO 2009

From 2008 to 2009,
there was a 20.1 percent
decrease in construction
for single family
building permits,

TWO-FAMILY
PERMITS
25.3%
FROM
2008 TO 2009

and a 25.3 percent
decrease for two-family
building permits.

There was a
36.2 percent decrease
for solar space heating,
and a 61.5 percent
decrease in solar for
water heating. Natural
gas and propane remain
the most commonly
used fuels for space and
water heating.

^a These statistics are incomplete before January 1, 2005, as not all municipalities who issue building permits reported this information.

^r Revised.

Source: Wisconsin Department of Commerce, Division of Safety and Buildings <http://www.commerce.state.wi.us/SB/SB-StatsUDCStatisticsList.html>;
Amerifax Data Corporation, <http://www.home2000.com/ad/welcom.htm> (1970-2009).